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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,816	04/19/2001	Hironori Osuga	33036W038	6211

7590 12/18/2002

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EXAMINER
SELLERS, ROBERT E

ART UNIT	PAPER NUMBER
1712	4

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/807,816	OSUGA, HIRONORI	
	Examiner	Art Unit	
	Robert Sellers	1712	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The effective filing date of the application is the 37 CFR 371 international application date of September 4, 2000 (MPEP § 706.02, "Determining the Effective Filing Date of the Application" and MPEP § 1893.03(b)).

Claims 1-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shiobara et al. Patent No. 5,418,266 (patent date of May 23, 1995).

Shiobara et al. '266 (col. 12, Table I, Examples E1-E5) shows a semiconductor encapsulant with low water absorption comprising a naphthalene containing epoxy resin (I) (cols. 9-10 table, epoxy resin (I), conforming to formula (4) depicted on page 18 of the specification), phenolic resin (I) (cols. 11-12 table, phenolic resin (I), conforming to formula (5) of page 18), a triphenylphosphine curing catalyst and spherical fused silica (col. 10, lines 44-46).

Claims 1, 2, 4 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Japanese Patent Nos. 11-71444 (March 16, 1999) or 11-92631 (April 6, 1999) or 11-130938 (May 18, 1999) or 11-100490 or 11-100491 (April 13, 1999).

Each of the Japanese patents exemplify semiconductor encapsulants with reduced warpage comprising Epikote 1032H (the epoxy resin employed in Example 1 on page 13, line 22 to page 14, line 1) and biphenyl epoxy resin YX 4000H (page 17, line 18 to page 18, line 1), a triphenylphosphine or 1,8-diazabicyclo[5.4.0]undecene-7 (Japanese '631) curing accelerator and fused silica.

The expressions set out in claim 1, lines 5-9 indicates the warping according to page 7, line 25 to page 8, line 6 of the specification.

Claims 1-7 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takami et al. (patent date of April 25, 2000).

Takami et al. (col. 14, Table 1, Example I-7) shows a semiconductor encapsulant comprising biphenyl epoxy resin I-A (col. 13, lines 15-16, epoxy resin YX-4000H identical to formula (3) described on page 17, line 18 to page 18, line 1), a naphthol phenol aralkyl resin I-B (col. 13, lines 45-47 having the structure exhibited in cols. 5-6, formula (4) which corresponds to formula (6) on page 18), a triphenylphosphine curing accelerator, silica powder and carbon black.

Claims 1-7 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fujii et al.

Fujii et al. (col. 7, Examples 1 and 3) shows a semiconductor encapsulant with high warping resistance (col. 1, lines 47-52) comprising biphenyl epoxy resin YX-4000H (conforming to formula (3) on page 17, line 18 to page 18, line 1), a curing agent of formula (2) which is a naphthalene-containing pehnolic resin (col. 3, lines 15-36), a triphenylphosphine/*p*-benzoquinone adduct curing accelerator, spherical silica and carbon black.

Claims 1, 2, 4 and 6 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shiobara et al. Patent No. 6,083,774 (patent date of July 4, 2000).

Shiobara et al. '774 (col. 8, Table 1, Example E3) shows a semiconductor encapsulant comprising a biphenyl epoxy resin (3) (col. 9, Epoxy resin (3), conforming to formula (3) on page 18), a phenolic resin (2) which is a MEH7800 phenol aralkyl resin possessing a structure embraced by formula (5) on page 18 according to Okuse et al. (cols. 23-24 second table Curing agent (1)), a triphenylphosphine Catalyst (1) (col. 9, line 59), spherical silica and carbon black.

Claims 1, 2, 4 and 6 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okuse et al. (filing date of January 6, 1998) or Arai et al. Patent No. 6,139,978 (filing date of December 30, 1998).

Okuse et al. (cols. 25-26, Table 1, Examples 1-4) shows a semiconductor encapsulant comprising biphenyl Epoxy resin (1) (cols. 21-22, YX-4000 corresponding to page 17, line 18 to page 18, line 1), Curing agent (1) (cols. 23-24, MEH-7800 which is encompassed by formula (5) on page 18), a triphenylphosphine curing accelerator, fused silica and carbon black.

Arai et al. '978 (col. 13, Table 1, Example 4) shows a low warpage semiconductor encapsulant comprising Epoxy resin 1 (col. 10, lines 54-66, conforming to formula (1) on page 14), Phenolic resin curing agent 1 (col. 11, lines 11-22, within the ambit of formula (2) on page 14), a triphenylphosphine Curing accelerator 2 (col. 11, lines 40-48), spherical silica and carbon black.

The aforementioned 35 U.S.C. 102(a, b or e)/103(a) rejections do not recite the expressions defined in claim 8, lines 6-10 and the moisture absorption rate of claim 2. Fujii et al., Arai et al. '978 and the Japanese patents recognize the reduced warpage of their formulations. The Shiobara et al. patents and Takami et al. acknowledge the moisture resistance of their compositions.

Based on the identical species of epoxy resins and phenolic resins exemplified in the patents and instant specification along with curing accelerators and filler, the compositions of the prior art applied hereinabove inherently possess the reduced warpage denoted by the expressions of claim 1 and the lowered moisture absorption rate of claim 2. The burden of proof is shifted to applicant to demontstrate whether or not the formulations of the references inherently possesses the claimed properties (*In re Fitzgerald*, 205 USPQ 594, CCPA 1980 and MPEP §§ 2112-2112.02).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. Patent No. 5,827,908.

Arai et al. '908 (cols. 21-22, Table 1, Examples 1-8 and col. 24, Table 3, Examples 9, 10 and 13-15) shows a semiconductor encapsulant containing biphenyl Epoxy resin (1) (cols. 17-18 table, YX-4000H corresponding to formula (3) on page 17, line 18 to page 18, line 1), Epoxy resin (2) (cols. 17-18 table, NC 7000 conforming to formula (4) on page 18), Phenolic resin (2) (cols. 19-20 table, corresponding to formula (5) on page 18) and silicas.

The claimed curing accelerator is not exemplified, although column 15, lines 27-34 discloses the use of curing accelerators such as phosphine derivatives. It would have been obvious to employ a curing accelerator in the examples of Arai et al. '908 in order to lower the curing temperature and/or time.

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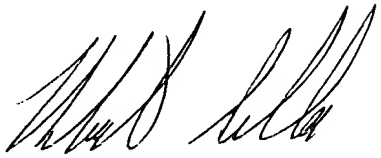

Robert Sellers
Primary Examiner
Art Unit 1712

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11/12/02